**Grade 7 & 8 Science & Literacy Planning**

**Grade**: 7 **Unit**: Interactions in the Environment

OVE #1: assess the impact of human activities and technologies on

the environment & evaluate ways of controlling these impacts

**BE** **(attitudes, beliefs, CGE)** STSE connection OVE #1

\*impacts of technologies (cars & computers) on the environment

\*analyze costs & benefits of strategies (recycling, IPM, roads, waterflow)

\*model ecosystem

\*safety – design & construct model; \*inquiry, research skills, communication

\*ecosystems \*abiotic/biotic elements \*roles of producers/ consumers/ decomposers

\*primary/secondary succession \*transfer of energy

**KNOW (content)** OVE #3 **DO (skills)** OVE #2

OVE #3: demonstrate understanding of OVE #2: investigate interactions within the environment

interactions between and among biotic and identify factors that affect balance between

and abiotic elements in the environment different components of an ecosystem

**Big Ideas**:

\*Ecosystems are made up of living and non-living things which depend on each other

to survive. (O.E. 2,3)

\*Ecosystems are constantly changing due to nature or human intervention. (O.E. 1,2)

\*Human activities have the potential to alter the environment. Humans must be aware of these impacts and try to control them. (O.E. 1)

**Inquiry Questions:**

\*How do our actions affect the natural world?

\*How does human activity affect our environment?

\*What responsibility do we have to minimize the effect of our actions on the environment?

\*Is protecting ecosystems an effective way to be a good steward of the environment?

\*Can one person make a difference?

**Opportunities for pre-assessment of knowledge and skills:**

\*Anticipation Guide (Line Masters A3, Teacher Resource, p.103)

\*Exploring Unit Starter (page 10-12)

\*reading and discussing, Quicklab, STSE connection

\*assess background knowledge, ability to make connections, point of view,

data analysis, use of graphic organizers

\*getting started features for each chapter (include sciencesource.ca puzzles)

\*TLCP pre-assessment question on point of view using text from 10 Smartest Adaptations in Nature

(Which is the smartest adaptation of all?)

**Designing With the End in Mind**

**Assessment “of” Learning:** Unit task, culminating performance task integrated with other subject area(s)...

Letter to editor (culminating activity) *writing & science* (OVE 1, 2)

* Assessment rubric – Line Master 22 (Teacher Resource, Program Overview p.25)

Unit test/quiz (OVE 3)

**Unit task breakdown:** what are the skills necessary to complete this task, what subtasks are involved...

Letter to the Editor – follow “Think Literacy” boxes in Ch 3

* Before Writing p.59 – samples of letters to the editor
* During Writing (part 1) p.70
* During Writing (part 2) p.76
* After Writing p.82

Also see Line Master A7 “Letter to the Editor” (Teacher Resource p.107)

**Inquiry Based Learning**

**Student Inquiries:**

\*student to identify living and non-living things (re A6 Quick Lab p.15)

* Skills Worksheet 1 – Process Skills: Observing (Teacher Resource p.26) to review observation skills
* Graphic Organizer: Line Master A6 reflect and evaluate (Teacher Resource p.106)

\*Ecosystem in a Jar (pp. 29 & 53)

* possibility for Smarter Science posters (Steps to Inquiry)
* Skills Worksheet 5 – Process Skills: Predicting (Teacher Resource p. 31) to read and complete before proceeding to Analyzing and Interpreting section
* Assessment Rubric, Line Master 6 – Working Cooperatively (Teacher Resource p. 9)
* Assessment Rubric, Line Master 2 – Investigation/Inquiry Activity (those sections that are applicable) (Teacher Resource p. 4-5)

Alternative: use Gizmos to investigate interactions in ecosystems and factors that affect them

**Rabbit Population**

Observe the population of rabbits in an environment over many years. The land available to the rabbits and weather conditions can be adjusted to investigate the effects of urban sprawl and unusual weather on wildlife populations.

<http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=380>

**Forest Ecosystem**

Observe and manipulate the populations of four creatures (trees, deer, bears, and mushrooms) in a forest. Investigate the feeding relationships (food web) in the forest. Determine which creatures are producers, consumers, and decomposers. Pictographs and line graphs show changes in populations over time.

<http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=639>

**Pond Ecosystem**

Measure the temperature and oxygen content of a pond over the course of a day. Then go fishing to see what types of fish live in the pond. Many different ponds can be investigated to determine the influence of time, temperature, and farms on oxygen levels.

<http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=664>

**Prairie Ecosystem**

Observe the populations of grass, prairie dogs, ferrets and foxes in a prairie ecosystem. Investigate feeding relationships and determine the food chain. Bar graphs and line graphs show changes in populations over time.

<http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=647>

\* A37 Decision-Making Analysis - Managing Forests and Forest Fires (p.66)

* Graphic Organizer: use KWL chart

**Integration Opportunities:** (Geography, History, Language, The Arts, Virtues, Religion/Family Life...) see literacy curriculum map

\*Family Life – Unit 1 Created and loved by God \*Literacy - (text forms/text features; inferencing – vocabulary, evaluating, analyzing)

\*Geography – Gage Physical Geography 7 text

Unit 1, Chapter 4: Themes of Geo. Inquiry: Environment, pg. 64-70 Ecosystems

(food pyramids & webs, the balance of nature, the case for protecting species, fragile ecosystems, how people see the environment differently)

Unit 1, Chapter 5: pg. 76-78 Environmental Limits on Human Activity

pg. 79-81 The Physical environment: Challenge & Opportunity

pg. 82-86 How People Affect the Environment

**Literacy Supports:** (Reading, Writing, Oral, Media) see literacy curriculum map

**Organization of Literacy Supports in Pearson’s**

***Investigating Science & Technology textbooks***

|  |
| --- |
| **Chapter Grade 7 Grade 8** |
| **1 Previewing Text Features** |
| **2 Visualizing** |
| **3** *Letter to Editor Newspaper Article* |
| **4 Making Connections** |
| **5 Inferring** |
| **6** *Question & Answer Problem & Solution* |
| **7 Making Predictions** |
| **8 Monitoring Comprehension** |
| **9** *Sequential/Procedural Compare & Contrast* |
| **10 Determining Importance** |
| **11 Asking Questions** |
| **12** *Cause & Effect Description* |

**Other resources I could use/integrate**: (e.g. The 10 magazines...)

|  |  |  |  |
| --- | --- | --- | --- |
| The 10 Coolest Wonders of the Universe |  | The 10 Greatest Threats to Earth | **X** |
| The 10 Greatest Accidental Inventions |  | The 10 Most Essential Chemical Messengers |  |
| The 10 Most Amazing Bridges |  | The 10 Most Extraordinary Medical Conditions |  |
| The 10 Most Essential Elements |  | The 10 Most Revolting Parasites |  |
| The 10 Most Revolutionary Inventions |  | The 10 Most Significant Medical Breakthroughs |  |
| The 10 Deadliest Plants | **X** | The 10 Smartest Adaptations in Nature | **X** |

**Specific Sections from selected “The 10” resources – possibilities for guided reading/practice:**

\*10 Greatest Threats to Earth: Loss of Biodiversity; Pollution; Overpopulation; Freshwater Shortage \*10 Deadliest Plants: Mistletoe; Oleander; Poison Hemlock

\*10 Smartest Adaptations in Nature: Carnivorous Plants

**Vocabulary specific to this unit: (see p.102 of Teacher Resource)**

Chapter 1

ecosystems, abiotic, biotic, habitat, producers, consumers, decomposers, herbivores, carnivores, omnivores; scavengers, food chain

* prefixes:
  + eco, bio – brainstorm list of related words
  + herbi, carni, omni (see p.25 During Reading)
  + how do prefixes “a” and “de” change a word (e.g. abiotic vs biotic; decomposer)
* origin of root word “–vores” (see p.25 During Reading)

Chapter 2

wetlands, primary/secondary/tertiary consumers, food web, sustainability

* how does primary, secondary & tertiary change/affect the meaning of consumer

Chapter 3

primary/secondary succession, toxic substances

pioneer species: activate prior knowledge of the word “pioneer” & how it impacts meaning of “pioneer species”

**Assessment Opportunities: “for” and “as” Learning:**

for learning:

* learning goals & success criteria
* anticipation guide & Quick Lab A3 – preassessment
* point of view preassessment
* descriptive feedback (oral & written)
  + during the writing process for Letter to Editor
    - Line Master A7
    - Assessment Rubric LM 22
  + during inquiries
    - Line Master A6
    - Assessment Rubric LM 2
    - Assessment Rubric LM6
    - KWL chart
    - teacher observations/anecdotal notes & comments
    - Note: if this is the first unit, then consider only assessing and not evaluating scientific inquiry skills; provide further opportunities for improvement in other units
* possible use of exit cards (related but not limited to check and reflect, Chapter review, Chapter quiz/test)
* online quizzes (sciencesource.ca)
* peer assessment: The 10 magazines- journal writing; quick labs (oral presentation for group labs)

as learning (self assessment):

* anticipation guide
* Line Master A6
* exit cards
* KWL Chart